Crime Analysis in India (2001–2013)

USING MYSQL AND POWER BI

BY PARTH DESHMUKH

Project Overview

Objective:

- Analyze 13 years of crime data across India

- Identify crime trends, high-crime states, and categories

Tools Used:

- MySQL: For data cleaning, transformation & querying

- Power BI: For interactive visualizations and dashboards

MySQL: Data Cleaning & Structure

- Created 'crimes' table with relevant columns

- Imported CSV data

- Cleaned whitespace and fixed data types

- Example queries:

  • Total crimes per year/state

  • Crime type-wise growth trends

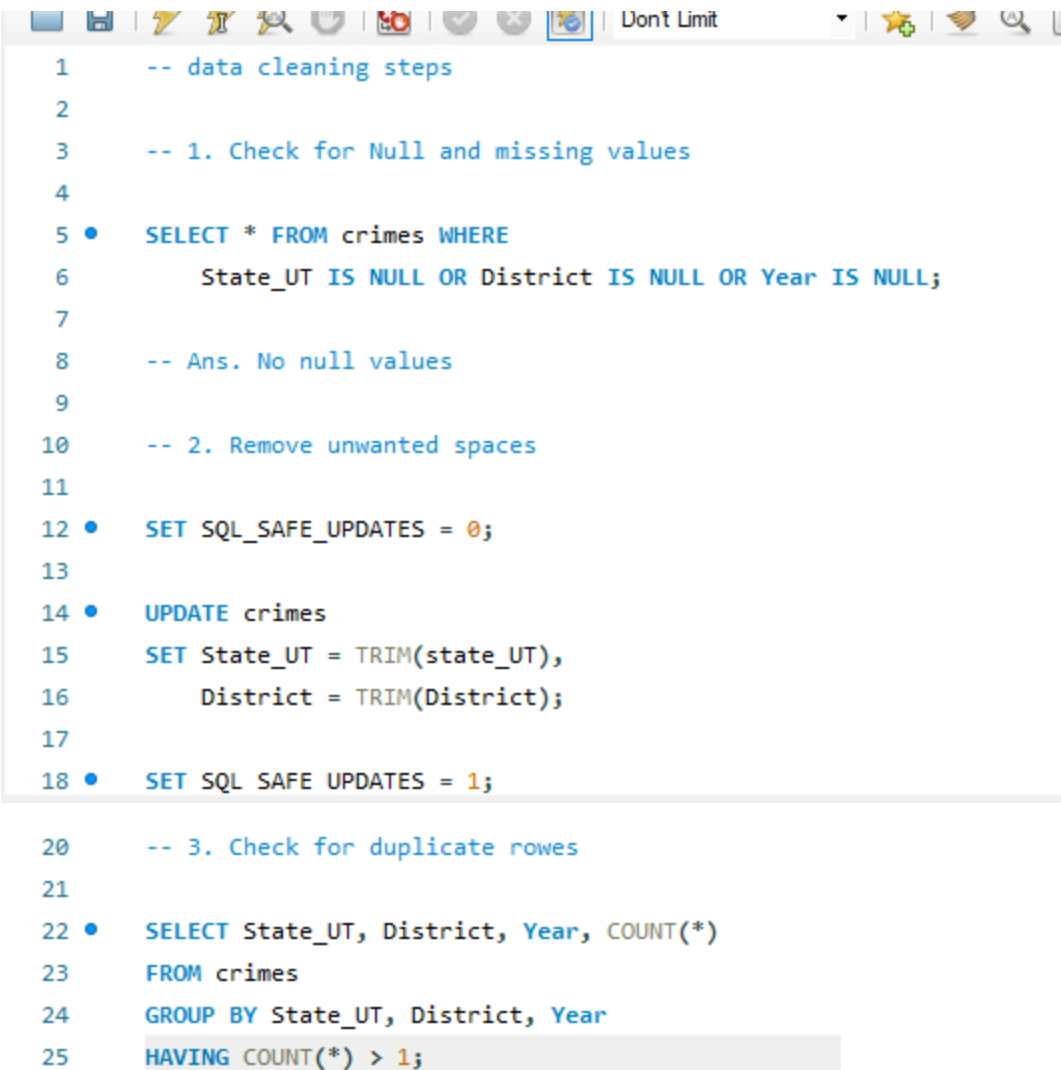 • Top states and districts by crime

Creating database, table and view table command:

```
1       -- create database
2  ●    CREATE DATABASE crimedata;
3  ●    USE crimedata;
4
5       -- create table
6  ● ⊖  CREATE TABLE crimes (
7           State_UT VARCHAR(255),
8           District VARCHAR(255),
9           Year INT,
10          Murder INT DEFAULT 0,
11          RAPE INT DEFAULT 0,
12          Kidnapping INT DEFAULT 0,
13          Dacoity INT DEFAULT 0,
14          Burglary INT DEFAULT 0,
15          Theft INT DEFAULT 0,
16          Robbery INT DEFAULT 0,
17          Riots INT DEFAULT 0,
18          Dowery_Death INT DEFAULT 0,
19          Assault_on_Women INT DEFAULT 0,
20          Import_girls INT DEFAULT 0
21      );
22 ●    SELECT * FROM crimedata.crimes;
```

Table :

State_UT	District	Year	Murder	RAPE	Kidnapping	Dacoity	Burglary	Theft	Robbery	Riots	Dowery_Death	Assault_on_Women	Import_girls
ANDHRA PRADESH	ADILABAD	2001	101	50	46	9	198	199	41	78	16	149	0
ANDHRA PRADESH	ANANTAPUR	2001	151	23	53	8	191	366	16	168	7	118	0
ANDHRA PRADESH	CHITTOOR	2001	101	27	59	4	237	723	14	156	14	112	0
ANDHRA PRADESH	CUDDAPAH	2001	80	20	25	1	98	173	4	164	17	126	0
ANDHRA PRADESH	EAST GODAVARI	2001	82	23	49	4	437	1021	25	70	12	109	0
ANDHRA PRADESH	GUNTAKAL RLY.	2001	3	0	0	5	0	162	2	1	0	1	0
ANDHRA PRADESH	GUNTUR	2001	182	54	82	16	338	1122	59	244	7	139	0
ANDHRA PRADESH	HYDERABAD CITY	2001	111	37	80	13	1155	2792	67	65	24	118	0
ANDHRA PRADESH	KARIMNAGAR	2001	162	56	67	27	218	392	50	220	62	414	0

Data Cleaning Command :

```sql
-- data cleaning steps

-- 1. Check for Null and missing values

SELECT * FROM crimes WHERE
    State_UT IS NULL OR District IS NULL OR Year IS NULL;

-- Ans. No null values

-- 2. Remove unwanted spaces

SET SQL_SAFE_UPDATES = 0;

UPDATE crimes
SET State_UT = TRIM(state_UT),
    District = TRIM(District);

SET SQL SAFE UPDATES = 1;

-- 3. Check for duplicate rowes

SELECT State_UT, District, Year, COUNT(*)
FROM crimes
GROUP BY State_UT, District, Year
HAVING COUNT(*) > 1;
```

Total Crimes pear year from 2001 to 2013 :

```
1      -- Total crimes pear year from 2001 to 2013
2
3 ●    SELECT year,
4           SUM(Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls) AS Total_Crimes
5      FROM crimes
6      GROUP BY year
7      ORDER BY Total_crimes DESC;
```

Output:

year	Total_Crimes
2013	3187348
2012	2788724
2011	2742520
2010	2635200
2009	2563880
2008	2538876
2007	2349580
2001	2288460
2004	2264500
2006	2263944

Result 1

Total crimes by state from 2001 to 2013:

```sql
1       -- Total crimes by states from 2001 to 2013
2
3    •  SELECT State_UT,
4              SUM(Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls) AS Total_Crimes
5       FROM crimes
6       GROUP BY State_UT
7       ORDER BY Total_crimes DESC;
```

Output :

State_UT	Total_Crimes
MAHARASHTRA	4382960
UTTAR PRADESH	3009752
MADHYA PRADESH	2721256
ANDHRA PRADESH	2414288
BIHAR	1991908
RAJASTHAN	1974988
KARNATAKA	1909736
WEST BENGAL	1589524
GUJARAT	1546384
TAMIL NADU	1521964

Total crime by districts:

```
1     -- Total crimes by districts
2
3 ●   SELECT District,
4           SUM(Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls) AS Total_Crimes
5     FROM crimes
6     GROUP BY District
7     ORDER BY Total_Crimes DESC;
8
```

Output :

District	Total_Crimes
TOTAL	13868980
ZZ TOTAL	1593674
DELHI UT TOTAL	619536
BANGALORE COMMR.	322884
MUMBAI COMMR.	274910
AHMEDABAD COMMR.	171800
HYDERABAD CITY	169656
PUNE COMMR.	168708
MUMBAI	152522
INDORE	145022

Total of each crime type from 2001 to 2013

```sql
1    -- Total of each crime type from 2001 to 2013
2
3  ● SELECT
4        SUM(Murder) AS Total_Murder,
5        SUM(RAPE) AS Total_Rape,
6        SUM(Kidnapping) AS Total_Kidnapping,
7        SUM(Dacoity) AS Total_Dacoity,
8        SUM(Burglary) AS Total_Burglary,
9        SUM(Theft) AS Total_Theft,
10       SUM(Robbery) AS Total_Robbery,
11       SUM(Riots) AS Total_Riots,
12       SUM(Dowery_Death) AS Total_Dowery_Death,
13       SUM(Assault_on_Women) AS Total_Assault,
14       SUM(Import_girls) AS Total_Import_Girls
15   FROM crimes;
16
17
```

Output :

Total_Murder	Total_Rape	Total_Kidnapping	Total_Dacoity	Total_Burglary	Total_Theft	Total_Robbery	Total_Riots	Total_Dowery_Death	Total_Assault	Total_Import_Girls
1742976	1091376	1689272	255792	4886960	15492608	1120776	3388212	397140	2095576	3692

Year wise rape trained for specific state :

```sql
1       -- Year wise rape traind for specific state
2
3 ●     SELECT Year, SUM(Rape) As Rape_Cases
4       FROM crimes
5       WHERE State_UT = 'Maharashtra'
6       GROUP By Year
7       Order By Rape_cases DESC;
```

Output:

Year	Rape_Cases
2013	12252
2012	7356
2011	6804
2010	6396
2008	6232
2005	6180
2006	6000
2009	5932
2007	5804
2004	5552

District with highest rape cases :

```
1       -- District with highest rape cases

2

3 •     SELECT State_UT, District, Sum(Rape) as Total_rapes
4       FROM CRIMES
5       GROUP BY State_UT, District
6       ORDER BY Total_rapes DESC;
```

Output:

State_UT	District	Total_rapes
MADHYA PRADESH	TOTAL	72174
WEST BENGAL	TOTAL	41574
UTTAR PRADESH	TOTAL	38116
MAHARASHTRA	TOTAL	35972
ASSAM	TOTAL	32356
RAJASTHAN	TOTAL	31596
ANDHRA PRADESH	TOTAL	26958
BIHAR	TOTAL	26248
CHHATTISGARH	TOTAL	23676
ODISHA	TOTAL	22860

Most dangerous state :

```
1    -- Most dangerous state (highest total crimes in a single year)
2
3  ● SELECT State_UT,
4       SUM(Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls) AS Total_Crimes
5    FROM crimes
6    GROUP BY State_UT
7    ORDER BY Total_Crimes DESC
8    LIMIT 1;
```

Output:

State_UT	Total_Crimes
MAHARASHTRA	4382960

Compare total crimes between two year :

```sql
1    -- Compare total crimes between two years:
2
3  ● SELECT State_UT,
4        SUM(CASE WHEN Year = 2001 THEN Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls ELSE 0 END) AS Crimes_2001,
5        SUM(CASE WHEN Year = 2013 THEN Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls ELSE 0 END) AS Crimes_2013
6  FROM crimes
7  GROUP BY State_UT
8  order by Crimes_2013 DESC;
```

Output :

State_UT	Crimes_2001	Crimes_2013
MAHARASHTRA	290736	431416
UTTAR PRADESH	265860	351304
MADHYA PRADESH	212164	234388
ANDHRA PRADESH	145764	229160
RAJASTHAN	178668	206016
BIHAR	132912	205192
DELHI UT	105248	185824
WEST BENGAL	92400	177056
KARNATAKA	125344	176332
HARYANA	51364	135072

Crime growth rate for each type:

```sql
1    -- Crime growth rate for each type:
2
3  • SELECT 'Murder' AS Crime_Type,
4        ROUND((MAX(Murder) - MIN(Murder)) / MIN(Murder) * 100, 2) AS Growth_Percer
5  FROM crimes
6  WHERE Murder > 0
7
8  UNION
9
10  SELECT 'RAPE',
11        ROUND((MAX(RAPE) - MIN(RAPE)) / MIN(RAPE) * 100, 2)
12  FROM crimes
13  WHERE RAPE > 0
14
15  UNION
16
17  SELECT 'Kidnapping',
18        ROUND((MAX(Kidnapping) - MIN(Kidnapping)) / MIN(Kidnapping) * 100, 2)
19  FROM crimes
20  WHERE Kidnapping > 0
21
22  UNION
23
24  SELECT 'Dacoity',
25        ROUND((MAX(Dacoity) - MIN(Dacoity)) / MIN(Dacoity) * 100, 2)
26  FROM crimes
27  WHERE Dacoity > 0
28
29  UNION
```

```sql
31  SELECT 'Burglary',
32        ROUND((MAX(Burglary) - MIN(Burglary)) / MIN(Burglary) * 100, 2)
33  FROM crimes
34  WHERE Burglary > 0
35
36  UNION
37
38  SELECT 'Theft',
39        ROUND((MAX(Theft) - MIN(Theft)) / MIN(Theft) * 100, 2)
40  FROM crimes
41  WHERE Theft > 0
42
43  UNION
44
45  SELECT 'Robbery',
46        ROUND((MAX(Robbery) - MIN(Robbery)) / MIN(Robbery) * 100, 2)
47  FROM crimes
48  WHERE Robbery > 0
49
50  UNION
51
52  SELECT 'Riots',
53        ROUND((MAX(Riots) - MIN(Riots)) / MIN(Riots) * 100, 2)
54  FROM crimes
55  WHERE Riots > 0
56
57  UNION
```

```sql
59  SELECT 'Dowery_Death',
60        ROUND((MAX(Dowery_Death) - MIN(Dowery_Death)) / MIN(Dowery_Death) * 100, 2)
61  FROM crimes
62  WHERE Dowery_Death > 0
63
64  UNION
65
66  SELECT 'Assault_on_Women',
67        ROUND((MAX(Assault_on_Women) - MIN(Assault_on_Women)) / MIN(Assault_on_Women) * 100, 2)
68  FROM crimes
69  WHERE Assault_on_Women > 0
70
71  UNION
72
73  SELECT 'Import_girls',
74        ROUND((MAX(Import_girls) - MIN(Import_girls)) / MIN(Import_girls) * 100, 2)
75  FROM crimes
76  WHERE Import_girls > 0;
77
```

Output:

Crime_Type	Growth_Percent
Murder	760000.00
RAPE	433400.00
Kidnapping	1118200.00
Dacoity	131800.00
Burglary	1832700.00
Theft	5344800.00
Robbery	974500.00
Riots	1193000.00
Dowery_Death	233400.00

Crime rate trend by year and crime type :

```sql
1    -- Crime rate trend by year and crime type (pivot format):
2 ●  SELECT
3        Year,
4        SUM(Murder) AS Murder,
5        SUM(RAPE) AS Rape,
6        SUM(Kidnapping) AS Kidnapping,
7        SUM(Dacoity) AS Dacoity,
8        SUM(Burglary) AS Burglary,
9        SUM(Theft) AS Theft,
10       SUM(Robbery) AS Robbery,
11       SUM(Riots) AS Riots,
12       SUM(Dowery_Death) AS Dowery_Death,
13       SUM(Assault_on_Women) AS Assault,
14       SUM(Import_girls) AS Import_Girls
15   FROM crimes
16   GROUP BY Year
17   ORDER BY Year;
```

Output :

Year	Murder	Rape	Kidnapping	Dacoity	Burglary	Theft	Robbery	Riots	Dowery_Death	Assault	Import_Girls
2001	144808	64300	89948	24616	404728	1011212	79604	304888	27404	136496	456
2002	141160	65492	87400	24404	385844	989848	75056	275780	27288	135772	304
2003	130864	63388	79968	21212	371308	980948	70048	229336	24832	131756	184
2004	134432	72932	93308	21244	369960	1092180	73832	239884	28104	138268	356
2005	130876	73436	91328	20564	360432	1092444	70692	224940	27148	136700	596
2006	129924	77392	95964	18988	366664	1097416	73824	226564	30472	146468	268
2007	129272	82948	110244	18316	364872	1140172	76544	239660	32372	154936	244
2008	131064	85868	121044	18120	374968	1267044	82088	264072	32688	161652	268
2009	129476	85588	135440	18344	368280	1296780	89636	251768	33532	154844	192
2010	133340	88688	153760	17432	360716	1321248	93572	270284	33564	162452	144

Year-Wise % share of each crime type :

```sql
1    -- Year-wise % share of each crime type:
2
3 ● SELECT
4      Year,
5
6   ⊖ ROUND(SUM(Murder) * 100.0 / SUM(
7         Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls
8      ), 2) AS Murder_Pct,
9
10  ⊖ ROUND(SUM(RAPE) * 100.0 / SUM(
11        Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls
12     ), 2) AS Rape_Pct,
13
14  ⊖ ROUND(SUM(Kidnapping) * 100.0 / SUM(
15        Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls
16     ), 2) AS Kidnapping_Pct,
17
18  ⊖ ROUND(SUM(Dacoity) * 100.0 / SUM(
19        Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls
20     ), 2) AS Dacoity_Pct,
21
22  ⊖ ROUND(SUM(Burglary) * 100.0 / SUM(
23        Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls
24     ), 2) AS Burglary_Pct,
25
26  ⊖ ROUND(SUM(Theft) * 100.0 / SUM(
27        Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls
28     ), 2) AS Theft_Pct,

30  ⊖ ROUND(SUM(Robbery) * 100.0 / SUM(
31        Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls
32     ), 2) AS Robbery_Pct,
33
34  ⊖ ROUND(SUM(Riots) * 100.0 / SUM(
35        Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls
36     ), 2) AS Riots_Pct,
37
38  ⊖ ROUND(SUM(Dowery_Death) * 100.0 / SUM(
39        Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls
40     ), 2) AS Dowery_Death_Pct,
41
42  ⊖ ROUND(SUM(Assault_on_Women) * 100.0 / SUM(
43        Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls
44     ), 2) AS Assault_on_Women_Pct,
45
46  ⊖ ROUND(SUM(Import_girls) * 100.0 / SUM(
47        Murder + RAPE + Kidnapping + Dacoity + Burglary + Theft + Robbery + Riots + Dowery_Death + Assault_on_Women + Import_girls
48     ), 2) AS Import_girls_Pct
49
50   FROM crimes
51   GROUP BY Year
52   ORDER BY Year;
```

Output :

Year	Murder_Pct	Rape_Pct	Kidnapping_Pct	Dacoity_Pct	Burglary_Pct	Theft_Pct	Robbery_Pct	Riots_Pct	Dowery_Death_Pct	Assault_on_Women_Pct	Import_girls_Pct
2001	6.33	2.81	3.93	1.08	17.69	44.19	3.48	13.32	1.20	5.96	0.02
2002	6.39	2.97	3.96	1.11	17.47	44.82	3.40	12.49	1.24	6.15	0.01
2003	6.22	3.01	3.80	1.01	17.65	46.63	3.33	10.90	1.18	6.26	0.01
2004	5.94	3.22	4.12	0.94	16.34	48.23	3.26	10.59	1.24	6.11	0.02
2005	5.87	3.29	4.10	0.92	16.17	49.01	3.17	10.09	1.22	6.13	0.03
2006	5.74	3.42	4.24	0.84	16.20	48.47	3.26	10.01	1.35	6.47	0.01
2007	5.50	3.53	4.69	0.78	15.53	48.53	3.26	10.20	1.38	6.59	0.01
2008	5.16	3.38	4.77	0.71	14.77	49.91	3.23	10.40	1.29	6.37	0.01
2009	5.05	3.34	5.28	0.72	14.36	50.58	3.50	9.82	1.31	6.04	0.01

Tope 5 states for each crime type:

```
1      --  Top 5 states for each crime type:
2
3  ●   SELECT State_UT,
4              SUM(Kidnapping) AS Total_Kidnapping,
5              SUM(Murder) AS Total_Murder,
6              SUM(RAPE) AS Total_Rape,
7              SUM(Dacoity) AS Total_Dacoity,
8              SUM(Burglary) AS Total_Burglary,
9              SUM(Theft) AS Total_Theft,
10             SUM(Robbery) AS Total_Robbery,
11             SUM(Riots) AS Total_Riots,
12             SUM(Dowery_Death) AS Total_Dowery_Death,
13             SUM(Assault_on_Women) AS Total_Assault_on_Women,
14             SUM(Import_girls) AS Total_Import_girls
15     FROM crimes
16     GROUP BY State_UT
17     ORDER BY Total_Kidnapping DESC
18     LIMIT 5;
```

Output :

State_UT	Total_Kidnapping	Total_Murder	Total_Rape	Total_Dacoity	Total_Burglary	Total_Theft	Total_Robbery	Total_Riots	Total_Dowery_Death	Total_Assault_on_Women	Total_Import_girls
UTTAR PRADESH	281796	281960	88432	21620	289080	1415984	137432	240796	104636	148004	12
BIHAR	171160	178744	57008	46712	177912	699180	100748	468108	58920	31628	1788
RAJASTHAN	142852	69668	76332	2488	284204	1047608	40544	146460	22076	142728	28
ASSAM	130960	67144	72460	17664	156172	383960	33560	149568	5784	64116	40
DELHI UT	125508	26888	32240	1656	105560	1046680	30824	4436	6904	44196	4

Multi-crime analysis :

```sql
1    -- Multi-crime analysis: Top 5 states with high rape and kidnapping combined
2
3 •  SELECT State_UT,
4        SUM(Murder + RAPE + Kidnapping) AS Total_Sensitive_Crime
5    FROM crimes
6    GROUP BY State_UT
7    ORDER BY Total_Sensitive_Crime DESC
8    LIMIT 5;
```

Output :

State_UT	Total_Sensitive_Crime
UTTAR PRADESH	652188
BIHAR	406912
MADHYA PRADESH	344980
WEST BENGAL	305456
MAHARASHTRA	296276

Power BI: Dashboard Components

- Unpivoted data for better analysis

- Created DAX measures for:

  • Total Crimes, Crime Growth %, Crime Type Breakdown

- Built visuals:

  • Year-wise trends

  • State-wise crime maps

  • Top crime types and heatmaps

India Crime Analysis (2001-2013)

354M	2M	1M	2M	39
Total Crimes	Total Murders	Total Rapes	Total Kidnapping	Crime Growth %

Year

All ⌄

State_UT

All ⌄

Crime_Type

All ⌄

Crimes Over The Year

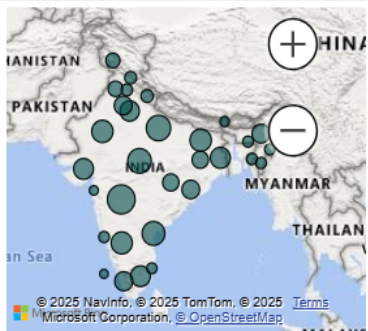Crime_Type ● Assault_on... ● Burglary ● Dacoity ● Dowery_De... ● Import_girls ● Kidnapping ● Murder ▶

State Wise Top 3 Crimes

State_UT	Total Kidnapping	Total Murders	Total Rapes	Crime Growth
A & N ISLANDS	376	640	436	-1(
A&N Islands	56	24	108	
ANDHRA PRADESH	93432	136960	60456	!
ARUNACHAL PRADESH	3996	3640	2300	
ASSAM	130960	67144	72460	
BIHAR	171160	178744	57008	!
CHANDIGARH	3604	1060	1304	
CHHATTISGARH	22320	52020	52872	
D & N HAVELI	564	432	224	-1(
D&N Haveli	52	12	20	
Total	1689272	1742976	1091376	

Top Contributing States by Crime Type

Total Crime Progressiosn Across Year

Crime_Type ● Assault_on_... ● Burglary ● Dacoity ● Dowery_D... ● Import_girls ▶
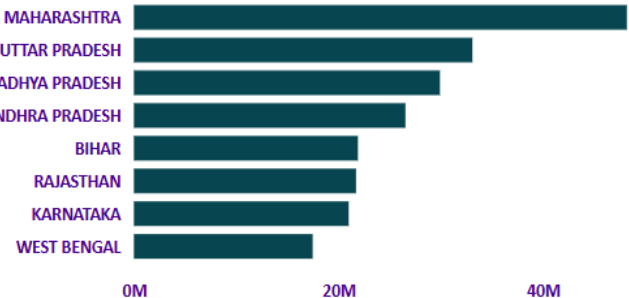

Top 10 States By Crime

Key Insights

- Maharashtra had the highest total crimes reported

- Crime increased ~45% from 2001 to 2013

- Rape and Kidnapping showed significant growth

- Major states show consistent crime trends year over year

Conclusion & Learnings

- Improved skills in SQL, DAX, and dashboard storytelling

- Understood importance of unpivoting for visualization

- Learned to derive actionable insights from messy data

- Ready for real-world analytics and reporting tasks

Thank You!